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POPULATION PROJECTIONS:
THE KENYAN EXPERIENCE

INTRODUCTION

The main objective of this paper is to study the population projections experience and/or situation in Kenya since 1969. In order to achieve this objective, the paper is divided into five main sections:-

(a) Part one is the introduction.
(b) Part two deals with the Geography and Climate of Kenya.
(c) Third, the demographic profile of Kenya since the first census in 1948 is reviewed.
(d) Fourth, a review of the population projections in Kenya since 1969 is made.
(e) Fifth, limitations of population projections are discussed. And finally the conclusion.

GEOGRAPHY AND CLIMATE OF KENYA

Kenya is situated across the equator, extending to latitudes 4° North and 4° South. The total area of 582,646 km^2 includes 14,789 km^2 of inland water, mainly accounted for by Lake Turkana and the North-Eastern part of Lake Victoria. Over half of Kenya, chiefly the northern and north-eastern parts of the country, is arid, while the south-eastern coastal strip and the south-western area of the country, namely the Kenya Highlands and Lake Plateau, are the main fertile and productive regions.

About 66% of Kenya has an average rainfall of under 50 cm. a year, and only 13% of the country can expect to receive consistently 60 cm. of rainfall or more a year. These better-watered areas are limited to the south-western area and the south eastern coastal belt.

Kenya is divided into 4 physical regions - The narrow coastal plain, the semi-arid region of the west and north, the highlands including the Rift Valley and lastly the plateau surrounding Lake Victoria. Of these regions the highlands and lake plateau are the most important and most densely populated.

THE DEMOGRAPHIC PROFILE OF KENYA (1948 - 1979)

The first national census in Kenya in 1948 showed a population of 5.4 million persons. By the time of the 1962 census the population had grown to 8.6 million and by the 1969 census it had reached 10.9 million. Results from the census conducted in August 1979 indicate that the population had grown to 15.8 million persons and the population is estimated to be about 20.1 million in 1985. As indicated by these figures, demographic trends over the past 33 years have resulted in an increasing rate of population growth. The growth of population is a result of the three components of population change: births, deaths, and migration. In Kenya, as in many developing countries, international migration is insignificant, hence the effect of the migration component in population change is minimal. Therefore population change in Kenya over the last three decades can be said to be a result of fertility and mortality changes

Trends in Fertility

In 195C's the Total Fertility Rate (defined as the number of live births that a woman reaching the end of her reproductive life has given birth to) was estimated at 6.5 children. By 1962 the average number had risen to 6.8. The 1969 census and the National Demographic Survey of 1977 indicated a total fertility rate of 7.6 and 8.1 respectively. The total fertility rate was estimated to be 7.9 children in 1979 which is lower than that of the 1977/78 National Demographic Survey. The 1979 estimate is conservative as it makes no allowance of the proportion of women who did not answer the fertility questions in the 1979 census. Corresponding to these high fertility rates, the birth rate (number of births per 1000 population) has remained very high. The 1969 and 1979 fertilify rates give crude birth rates of 50 and 52 per thousand respectively. Some of the factors which have contributed to the increasing fertility in Kenya are: Better nutrition, hygiene and health services and some weakening of traditional customs which acted to space births further a part such as prolonged breastfeeding, sexual abstinence following childbirth, and polygamy.

Trends in Mortality

Available evidence suggests that mortality has continued to decline sharply since 1962 in Kenya. The crude death rate (number of deaths per 1000 population) was established at between 18 and 23 per 1000 in the 1962 census, at 17 in the 1969 census and at 14 in the 1977 National Demographic Survey. Life expectancy at birth rose from an estimated 40 to 45 years in 1962 to 46.9 years for males and 51.2 years for females in 1969. Estimates made from the National Demographic Survey suggested a further rise in life expectancy at birth to 51.2 years for males and 55.8 years for females. The 1979 census indicated a life expectancy of 54.1 years for males and 56.9 years for females. The most significant improvement in mortality has been in infant mortality rates which declined from about 160 deaths per 1000 lives in the 1948-1958 period to approximately 92 in 1980.

The extensive declines in mortality in Kenya have been attributed to extensive improvement in public health measures such as vaccination programs, easier access to regular water supplies and the government efforts to improve the socio-economic well being of the average citizen.

Trends in Rates of Population Growth

The high and increasing level of fertility combined with declining mortality has resulted in an increasing rate of population growth. The average growth rate of about 2.5 per cent per year in 1948 rose to about 3.0 per cent per year in 1962 and to 3.3 per cent per year in 1969. The 1979 census registered a further rise in the rate of population growth to 3.8 per cent per annum. A population growth rate of 3.8 per cent per year means a doubling period of less than 18 years. The rapid population growth rate which has been a characteristic

of the Kenya population since 1948 has emerged as a matter of public concern because it is feared the resultant high increase in population might have a dampening effect on any development efforts. For this reason, the government always relies on demographers to provide population projections on which development plans are based.

POPULATION PROJECTIONS

The study of population growth has one specific practical application, which is to calculate population trends of the future. These calculations are called by various names - future populations, forecasts, extrapolations, estimates, or projections. They consist of extending some plausible patterns of growth from the past into the future! They may also be extended into the past. This is especially useful in reconstructing probable trends of undocumented past period and in testing the consistency of different censuses.

Of the various names which calculations of population trends of the future are called, may I define, the terms a projection and a forecast since these two terms are used interchangeably in this paper.

A projection may be defined as the exact measurement of a future condition that would exist if the rules and assumptions embodied in the projection method proved to be empirically valid in the future. Projections may assume continuation of past conditions, present conditions, or trended changes in historical conditions. They may also assume entirely new transition rates. The point is, therefore, given the projection method and the assumptions, a projection is always correct if the operations of the projection method are carried out without error. The number of possible projections for any given population is therefore infinitely large.

A forecast, on the other hand, is a projection that is also a judgement statement concerning the expected measurement of future conditions; it is a prediction. In other words, all forecasts are projections, but not all projections are forecasts.

A projection is simply a statistical extrapolation; i.e. the consequences of extending into the future the mathematical function which is thought to describe best the trend of past data. Its validity therefore, depends upon its basic premises. It shows what the expected course of events would be if the same conditions that affected the series of data in the past were to prevail in the future.

Uses of Population Projections

Demographers produce projections on the basis of statistical observations concerning levels and trends in the basic demographic determinants of population change, in so far as these parameters are known. The main contribution of demographers in development planning has been to prepare current estimates of demographic conditions. The projections are usually described as "if, then"

projections: "If such and such assumptions about fertility, mortality, and migration, then thefuture population will be so and so". Only the computations are "certified" not the results. Development planners then make a single choice from among the alternatives presented.

Development plans guide the commitment of economic and organizational resources in the present for the purpose of production in future. Urban planning, educational planning, health planning, and many other kinds of planning are undertaken to determine whether immediate expenditure will provide facilities for production and services that will be justified by demands of the population in the future.

It hardly seems necessary to stress that the same principles that require investment planners to look beyond the period of immediate commitment require development planners to do the same in relation to population. Demographic information and population projections of various kinds covering some specific time period are essential if quantitative planning is therefore to take place.

Population Projections in Kenya

As mentioned above, development plans which guide the commitment of economic and organizational resources in the present for the purposes of projections. To project a population one begins with information on size and age-sex composition at some time in the past. Then using assumptions about the age specific fertility and mortality rates, the population may be projected easily to any time in the future.

The data base for the projections to be discussed in this paper accrue from the 1969 and 1979 censuses. Details of the methods of projections will not be discussed. The assumptions on which the projections are based will however be mentioned briefly. First, the projections with the 1969 census data as the base data are discussed and then the projections with the 1979 census data as the base population are also discussed.

Population Projections with 1969 census data as the base data

The 1970 population by sex and age group which forms the starting point of the projections was based on the population enumerated in the census held in August, 1969.

Tables 1, 2, 3, 4 and 5 show Kenya's total projected population; projected primary school population (Ages 6-12); projected secondary school population (Ages 13-16); projected labour force population, (Ages 15-59) and projected labour force population, (Ages 15-64) from 1970 to the year 2000 under four various fertility and mortality assumptions. The four series of projections, identified subsequently as A, B, C, and D are based on the following assumptions:-

(1) No change from 1969 fertility upto 1975

(2) A steady decline in mortality, leading to life expectancy at birth by the year 2000 of 60 years for both sexes.

(3) The fertility assumption for each series are as follows:

Series A - No change in age specific fertility

Series B - The total fertility rate falling to 4 by the year 2000

Series C - The total fertility rate falling to 3 by the year 2000

Series D - The total fertility rate falling to 2 by the year 2000

The total population under the four series: A, B, C, and D is expected to be about 34, 286; 28, 131; 26, 164; and 24, 249 thousands by the year 2000 respectively.

The consequences of the growth of population as evidenced from the tables 2, 3, 4 and 5 would be the rising size of the school age population and the rising size of the labour force. The growth in population also has other social and economic consequences such as growing urbanization, a rising demand for housing, decreasing per capita availability of goods agricultural land etc.

For many purposes information on the size and characteristics of the total population of a nation is not sufficient. Population data are needed for political subdivisions, development planning and for other classifications of areas in which people live.

Various demographic studies in Kenya have indicated that population distribution varies from region to region. Climatically and ecologically favourable regions are more densely populated than the arid and semi-arid areas. It is against this background that projections have been made for each district and province for the period 1970 to 1980.

However, for the purposes of the provincial and district projections only series A and B of the four series mentioned in making national projections were used. Briefly, the assumptions underlying these two series are as follows:

(i) No change from 1969 fertility upto 1975.

(ii) A steady decline in mortality, leading to a rise in life expectancy at birth, for both sexes, from 49 years in 1969to 53 years in 1980.

(iii) (a) Series A - No change in age specific fertility rates through 1980.

(b) Series B - Decline in age specific fertility rate from 7.6 in 1969 to 6.9 in 1980.

Table 6 and 7 show projected population by province and district based on the two series; A and B respecively for the period 1970 to 1980.

TABLE 1 TOTAL PROJECTED POPULATION, 1970-2000

	Series A	Series B	Series C	Series D
1970	11,247			
1971	11,694			
1972	12,091	-----	As in Series A -----	
1973	12,504			
1974	12,935			
1975	13,413			
1976	13,853	13,842	13,839	13,833
1977	14,348	14,314	14,302	14,288
1978	14,875	14,806	14,782	14,757
1979	15,427	15,313	15,270	15,229
1980	16,053	15,877	15,790	15,752
1985	19,310	18,634	18,387	18,186
1990	23,302	21,617	21,047	20,521
1995	28,213	24,795	23,698	22,626
2000	34,286	28,131	26,164	24,249

PROJECTED PRIMARY SCHOOL POPULATION, AGES 6-12, 1970-2000

Table 2

	Series A		Series B		Series C		Series D	
	No '000	Rate %	No '000	Rate %	No '000	Rate %	No '000	Rate %
1970	2235		2235		2235		2235	
		3.49		3.49		3.49		3.49
1975	2652		2652		2652		2652	
		4.05		4.05		4.05		4.05
1980	3235		3235		3235		3235	
		4.02		3.46		3.12		2.94
1985	3939		3835		3773		3450	
		4.01		2.37		1.87		1.26
1990	4795		4312		4140		3997	
		3.98		1.87		1.27		0.35
1995	5830		4754		4411		4059	
		3.92		1.55		0.51		0.76
2000	7067		5134		4529		3908	

Source: CBS (1971)

Table 3

PROJECTED SECONDARY SCHOOL POPULATION, AGES 13-16, 1970-2000

	Series A		Series B		Series C		Series D	
	No '000	Rate %	No '000	Rate %	No '000	Rate %	No '000	Rate %
1970	1040		1040		1040		1040	
		3.39		3.39		3.39		3.39
1975	1228		1228		1228		1228	
		3.52		3.52		3.52		3.52
1980	1460		1460		1460		1460	
		4.17		4.17		4.17		4.17
1985	1792		1792		1792		1792	
		4.03		3.60		3.23		3.12
1990	2183		2132		2100		2094	
		4.01		2.46		1.99		1.46
1995	2658		2408		2317		2251	
		3.85		2.02		1.40		0.44
2000	3210		2661		2482		2300	

Source: CBS (1971)

Table 4

PROJECTED LABOUR FORCE, 1970-2000
(Population Aged 15-59)

	Series A		Series B		Series C		Series D	
	No	Rate	No	Rate	No	Rate	No	Rate
1970	3818							
		3.41)						
1975	4515	)						
		3.48)	------ As in Series A ----------					
1980	5357	)						
		3.57)						
1985	6376	)						
		3.70)						
199(	7667	)						
		3.85)		3.59		3.48		3.39
1995	9258		9144		9090		9060	
		3.91		3.33		3.14		2.99
2000	11215		10771		10611		10473	

Source: CBS (1971)

Table 5

PROJECTED LABOUR FORCE, 1970-2000
(Population Aged 15-64)

	Series A		Series B		Series C		Series D	
	No	Rate	No	Rate	No	Rate	No	Rate
	'000	%	'000	%	'000	%	'000	%
1970								
1975	4652	3.42)						
		3.47)						
1980	5517	)	------- As in series A ----------					
		3.55)						
1985	6568	)						
1990	7900	3.76)						
		)						
1995	9537	3.84	9423	3.59	9369	3.47	9339	3.40
2000	11553	3.91	11111	3.35	10950	3.17	10813	2.98

Source: CBS (1971)

PROJECTED POPULATION BY DISTRICT, 1970 - 1980

Based on "Series A"

Table 6

Province/District	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Total	11,247	11,694	12,001	12,504	12,935	13,414	13,853	14,348	14,875	15,427	16,053
Nairobi	534	566	597	629	663	700	736	776	818	863	913
Central Province	1,719	1,783	1,840	1,899	1,961	2,029	2,091	2,162	2,237	2,315	2,404
Kiambu	478	498	517	535	554	576	593	615	636	659	683
Kirinyaga	225	233	239	245	252	261	269	277	287	296	309
Murang'a	454	470	483	498	514	530	547	565	585	606	630
Nyandarua	189	196	203	209	215	222	227	234	240	245	251
Nyeri	373	386	398	411	425	440	454	471	489	509	530
Coast Province	970	1,009	1,044	1,079	1,117	1,158	1,196	1,239	1,285	1,333	1,387
Kilifi	315	326	335	345	355	366	377	388	400	413	427
Kwale	212	219	226	233	240	248	255	263	272	280	291
Lamu	22	22	23	22	22	21	21	21	20	20	19
Mombasa	257	272	286	301	317	334	351	371	391	413	436
Taita	113	117	119	123	126	129	133	136	140	144	148
Tana River	52	53	54	56	57	58	60	61	62	64	66
Eastern Province	1,953	2,023	2,083	2,146	2,211	2,284	2,349	2,424	2,503	2,585	2,680
Embu	185	193	201	209	218	227	236	246	256	267	280
Isiolo	30	31	31	32	32	32	33	33	33	34	34
Kitui	350	361	370	379	389	400	410	421	432	445	459
Machakos	724	750	772	795	819	845	869	897	926	956	991
Marsabit	52	53	53	54	54	55	55	55	56	56	57
Meru	612	635	656	677	700	724	747	772	799	828	860
North-Eastern Province	247	252	255	258	261	264	266	269	272	275	279
Garissa	65	66	67	68	68	69	70	71	71	72	73
Mandera	96	97	98	99	100	101	102	103	103	105	106
Wajir	87	89	90	91	92	93	94	95	97	98	99

Table 6 (cont.)

Province District	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Nyanza Provice	2,187	2,281	2,365	2,452	2,544	2,645	2,740	2,845	2,958	3,076	3,210
Kisii	695	723	748	775	802	833	861	893	927	962	1,003
Kisumu	414	433	450	469	487	508	528	550	573	598	626
Siaya	389	405	420	433	449	466	481	498	515	533	554
South Nyanza	689	720	748	777	807	841	872	907	944	983	1,027
Rift Valley Province	2,266	2,349	2,423	2,499	2,578	2,666	2,746	2,836	2,933	3,033	3,148
Baringo	162	165	166	167	168	170	170	171	172	173	174
Elgeyo Marakwet	162	167	171	175	179	183	187	192	197	202	208
Kajiado	88	91	94	97	100	104	106	110	114	118	122
Kericho	499	525	549	573	600	629	656	687	719	753	792
Laikipia	67	68	69	69	70	71	73	73	74	74	76
Nakuru	299	311	323	334	346	360	372	387	401	417	435
Nandi	214	222	229	237	244	253	261	270	280	289	300
Narok	126	129	132	134	137	141	143	146	148	151	155
Samburu	71	73	76	78	79	82	84	86	89	92	95
Trans Nzoia	130	137	143	151	158	166	173	181	190	200	211
Turkana	164	166	167	167	167	167	167	166	166	164	164
Uasin Gishu	199	209	218	228	237	249	259	270	283	296	311
West Pokot	84	86	87	89	91	93	94	96	98	100	103
Western Province	1,371	1,411	1,485	1,542	1,601	1,667	1,728	1,797	1,870	1,947	2,034
Bungoma	360	378	395	413	432	451	470	492	514	538	564
Busia	203	210	217	224	230	238	244	252	259	268	277
Kakamega	807	842	874	906	941	979	1,014	1,054	1,096	1,141	1,191

Source: CBS (1972)

PROJECTED POPULATION BY DISTRICT 1976-1980

Based on "Series B"

Table 7

Province/District	1976	1977	1978	1979	1980
Total	13,842	14,314	14,806	15,313	15,877
Nairobi	735	774	814	857	903
Central Province	2,090	2,157	2,226	2,298	2,377
Kiambu	594	613	633	654	676
Kirinyaga	268	277	285	295	305
Murang'a	546	563	582	601	623
Nyandarua	227	233	239	243	248
Nyeri	455	471	487	506	525
Coast Province	1,195	1,236	1,279	1,323	1,372
Kilifi	376	387	399	410	423
Kwala	255	262	270	278	287
Lamu	21	21	20	20	20
Mombasa	351	370	388	409	432
Taita	133	136	140	143	147
Tana River	59	61	62	64	65
Eastern Province	2,348	2,418	2,491	2,566	2,650
Embu	236	245	255	265	277
Isiolo	33	33	33	34	34
Kitui	409	420	430	441	453
Machakos	869	895	921	949	980
Marsabit	55	55	56	56	56
Meru	746	770	796	822	850
North-Eastern Province	266	268	271	273	276
Garissa	70	70	71	72	72
Mandera	102	103	103	104	105
Wajir	94	95	96	97	98
Nyanza Province	2,737	2,839	2,944	3,053	3,175
Kisii	861	891	923	956	992
Kisumu	528	549	571	594	619
Siaya	480	497	512	530	548
South Nyanza	871	905	940	976	1,016

Table 7 (Cont.)

Province/District	1976	1977	1978	1979	1980
Rift Valley Province	2,744	2,830	2,919	3,011	3,113
Baringo	170	171	171	172	172
Elgeyo Marakwet	187	192	195	200	205
Kajiado	106	110	113	117	121
Kericho	656	685	716	748	783
Laikipia	72	73	74	74	74
Nakuru	372	386	399	414	430
Nandi	261	269	278	287	297
Narok	142	145	147	150	154
Samburu	84	86	89	91	94
Trans Nzoia	173	181	189	199	208
Turkana	166	166	165	163	162
Uasin Gishu	259	270	282	294	307
West Pokot	94	96	98	100	102
Western Province	1,727	1,793	[illegible]	1,933	2,011
Bungoma	470	490	512	534	558
Busia	244	251	258	266	274
Kakamega	1,013	1,052	1,091	1,132	1,178

Source: CBS (1972)

Population Projections Using the Population Enumerated in the Census Held In August, 1979

The 1980 population by sex and age group which forms the starting point of the projections was based on the population enumerated in the census held in August, 1979. Projections for the years 1980 to 2000 have been made at the National level and at the District and Provincial levels.

National Level Projections for 1980 to 2000

Three sets of projections of the population of Kenya, by sex and age, for the years 1980 to 2000 have been made on the basis of the following assumptions.

A. that both fertility and mortality decline from the rates estimated for 1980 (Total fertility rate declines from 7.887 in 1980 to 5.5 at the end of the century; life expectancy at birth increases from 54.1 years for males and 56.9 years for females in 1980 to 58.8 years and 61.5 years for males and females respectively in the year 2000).

B. that fertility remains constant, but mortality continues to decline.

C. That both fertility and mortality remain constant.

The population totals for Kenya obtained from these projections are shown in Table 8. The table shows that whatever assumption is used, the population will pass 20 million this year (1985) and that it will pass 30 million by 1995-1996; and even the projection assuming declining fertility envisages a doubling of the population between 1980 and end of the century.

Table 9 shows projections for numbers of children of primary school age (6 to 12 years) for 1980 to 2000. Whatever the basis of assumptions, the school age population is expected to double between 1980 and the year 2000.

This increase in number of primary school children will need more school places, more teachers and many other social amenities.

Tables 10 shows projections for numbers of males 15 to 59 years for 1980 to year 2000. This can be interpretated as the labour force though it excludes the women population. As in the primary school age projections, the numbers of males in the age group 15 to 59 is expected to double between 1980 and the year 2000 whatever assumptions underly the projections.

This large number of people will need more jobs. In order for the government to create demand for this large labour force supply, the government will be expected to create more industries, new cash crop schemes, new government activity as well as the ability of the land to absorb more subsistence farmers.

Various other projections at national level in Kenya have been calculated. It is however not the intention of this paper to discuss in detail all that has been done.

Provincial and District Level Projections for 1980 to 2000

Unlike the National Projections, the Provincial and District level projections are available only for the period from 1980 to 2000. National projected totals assuming no change in mortality and no change in fertility were used as the base population of each year. No Provincial and District level projections were made using either assumption A or B due to complications involved in estimating the differential decline in mortality and/or fertility among the provinces and districts within provinces.

For example, consider the problem associated with using assumption A (decline in fertility). A decline in fertility would not happen simultaneously throughout the country. Any realistic provincial/district projections would therefore envisage more rapid fertility declines in some areas than in others, but introduces too much speculation as to where and when more or less decline would occur. If the assumptions in projection B do in fact occur during this ten-year period (mortality declines and fertility remains constant), the numbers given are UNDER-estimates, whereas if the assumptions in projection A happen (a decline in both mortality and fertility) the numbers OVER-estimates.

Two important considerations were used when calculating the provincial and district projections.

1. that the district totals sum to the provincial totals and the provincial totals sum to the national totals for each year, age and sex group;

2. that the projections look plausible given what is known about the growth rates in the various regions of Kenya.

To achieve the first requirement, calculations were done down to single person totals, instead of rounding each age-sex group to hundreds of people. However, it must be remembered that the numbers given, although they are the best estimates available, are still, in fact, ONLY ESTIMATES.

The projections for, first, the provinces and then districts within each province were done by what is called the "ratio method." The use of this method also catered for another important consideration for projections are based on changes during the ten years between 1969 and 1979, they incorporated internal migration patterns which is significant in Kenya unlike international migration. The net changes during this time period, a result of the natural growth rates and migration rates, are projected into the future.

Table 11 shows population projection totals by District and Province for 1980, 1985 and 1990 using the assumption of constant fertility and mortality over the decade. In all provinces and districts the population is exprected to grow by 50% between 1980 and 1990. This large increase has many socio-economic implications as mentioned in the projections based on the 1969 census data.

PROJECTED POPULATION TOTALS FOR KENYA 1980-2000
(Rounded to Thousands)

Table 8

Calendar Year	Assumptions		
	Declining Fertility Declining Mortality	Constant Fertility Declining Fertility	Constant Fertility Constant Mortality
1980	16,667	16,667	16,667
1981	17,342	17,342	17,342
1982	18,035	18,047	18,044
1983	18,748	18,784	18,775
1984	19,482	19,556	19,586
1985	20,241	20,365	20,333
1986	21,081	21,212	21,163
1987	21,826	22,100	22,030
1988	22,657	23,032	22,936
1989	23,513	24,009	23,883
1990	24,397	25,034	24,872
1991	25,308	26,109	25,905
1992	26,247	27,236	26,985
1993	27,214	28,418	28,113
1994	28,211	29,657	29,292
1995	29,237	30,966	30,622
1996	30,292	32,343	31,806
1997	31,378	33,738	33,144
1998	32,487		34,538
1999	33,626	36,782	35,991
2000	34,792	38,409	

Source: Central Bureau of Statistics (CBS)
Ministry of Economic Planning and Development, Nairobi, Kenya.
(March, 1983)

NUMBER OF CHILDREN OF PRIMARY SCHOOL AGE (6 TO 12 YEARS)
FOR KENYA 1980 TO 2000
(Rounded to Thousands)

Table 9

Calendar Year	Assumptions		
	Declining Fertility Declining Mortality	Constant Fertility Declining Mortality	Constant Fertility Constant Mortality
1980	3,607	3,607	3,607
1981	3,765	3,765	3,765
1982	3,927	3,927	3,926
1983	4,090	4,089	4,089
1984	4,251	4,248	4,247
1985	4,391	4,386	4,386
1986	4,565	4,557	4,554
1987	4,736	4,735	4,728
1988	4,907	4,921	4,908
1989	5,077	5,117	5,096
1990	5,250	5,327	5,296
1991	5,418	5,545	5,500
1992	5,587	5,776	5,716
1993	5,760	6,023	5,945
1994	5,941	6,293	6,193
1995	6,148	6,603	6,478
1996	6,336	6,911	6,760
1977	6,532	7,236	7,056
1988	6,736	7,578	7,367
1999	6,946	7,936	7,693
2000	7,159	8,307	8,029

Source: CBS (1983)

THE NUMBER OF MALES AGED 15 TO 59 FOR KENYA

1980 to 2000

(Rounded to thousands)

Table 10

Calendar Year	Assumptions		
	Declining Fertility Declining Mortality	Constant Fertility Declining Mortality	Constant Fertility Constant Mortality
1980	3,674	3,674	3,674
1981	3,828	3,828	3,828
1982	3,990	3,990	3,990
1983	4,162	4,162	4,161
1984	4,342	4,342	4,341
1985	4,532	4,532	4,529
1986	4,728	4,728	4,724
1987	4,933	4,933	4,928
1988	5,149	5,149	5,141
1989	5,374	5,374	5,365
1990	5,611	5,611	5,599
1991	5,858	5,858	5,843
1992	6,116	6,116	6,097
1993	6,384	6,384	6,361
1994	6,659	6,659	6,630
1995	6,930	6,930	6,896
1996	7,226	7,226	7,185
1997	7,530	7,530	7,485
1998	7,842	7,859	7,798
1999	8,164	8,198	8,124
2000	8,495	8,553	8,465

Source: Central Bureau of Statistics (CBS) (1983).

Table 11

ESTIMATED TOTAL POPULATION BY DISTRICT AND PROVINCE FOR 1980, 1985 & 1990 USING THE ASSUMPTION OF CONSTANT FERTILITY AND MORTALITY OVER THE DECADE

Province/District		Total Population 1980	1985	1990	Estimated Annual Net Growth Rate 1980 - 1990
NAIROBI	Total	897	1,162	1,505	517
CENTRAL	Total	2,511	3,041	3,692	385
Kiambu		736	898	1,098	460
Kirinyaga		311	373	448	865
Murang'a		695	850	1,042	405
Nyandraua		249	297	355	355
Nyeri		520	623	749	365
COAST	Total	1,440	1,756	2,150	401
Kilifi		462	561	684	392
Kwale		309	376	458	494
Lamu		46	59	77	515
Mombasa		365	442	537	386
Taita-Taveta		158	189	228	367
Tana River		100	129	166	507
EASTERN	Total	2,917	3,565	4,368	404
Embu		283	348	430	418
Isiolo		47	57	70	358
Kitui		497	599	724	376
Machakos		1,097	1,346	1,654	411
Marsabit		104	135	175	520
Meru		889	1,080	1,315	301
NORTH EASTERN	Total	404	509	640	460
Garissa		141	188	250	573
Mandera		112	128	144	251
Wajir		151	193	246	488
NYANZA	Total	3,058	3,633	4,322	346
Kisii		1,007	1,206	1,447	363
Kisumu		557	656	773	328
Siaya		549	651	773	347
South Nyanza		945	1,120	1,329	341

Table 11 (cont.)

Province/District		Total Population			Estimated Annual Net Growth Rate 1980 - 1990
		1980	1985	1990	
RIFT VALLEY	Total	3,481	4,314	5,356	431
Baringo		217	258	307	347
Elgeyo Marakwet		155	164	169	
Kajiado		161	208	267	
Kericho		677	816	984	
Laikipia		147	194	256	
Nakuru		567	734	952	
Nandi		321	396	488	
Narok		227	291	372	
Samburu		81	92	104	
Trans-Nzota		383	376	499	
Turkana		148	150	145	
Wasin Gishu		324	409	516	
West Pokot		173	226	297	
WESTERN	Total	1,960	2,855	2,837	
Bungoma		540	658	804	
Busia		320	391	479	
Kakamega		1,100	1,306	1,554	
KENYA	Grand Total				

Source: CBS (1983).

LIMITS OF POPULATION PROJECTIONS

The projections discussed above are made under various mortality and fertility assumption over some time period. Available evidence has indicated that the mortality assumptions underlined might not be tenable over a long period. It is therefore necessary to make projections over a short time interval of say one year and the projections should be revised from time to time. To do this, there should be reliable vital statistics from which the mortality and fertility levels have to be estimated. Since the system of civil registration in the country is not good enough (except in the Civil Registration Project Areas) this cannot be done. Therefore all our population projections have to be done after a national census, which provides the base data.

Further, future population depends on many other factors; such as social, economic and technological, other than demographic factors (birth, deaths and migration) mentioned above in making projections for Kenya. These social. economic and technological factors cannot be taken into account in making population projections. Therefore, how likely the future population totals will be near those projected by various variants or will fall within the wide range between the decline and growth variants is a question which demographers need to answer. A precise answer to this question cannot however be given since the problem is not probabilistic in nature.

For the purpose of this paper, I have decided to compare population of Kenya as enumerated in 1979 and the 1979 population projections based on the 1969 census population; under one various fertility and mortality assumptions.

The projections under series A, B, C and D are 15,437, 15,313, 15,271 and 15,229 millions respectively. The 1979 census gave the population as 15.8 million persons.

A study of the two sets of figures shows that the actural population in Kenya is higher than the projected population under all the four series. But the projection under series A (no change in age specific fertility) is more closer to the actual population as given by the census.

Further, we realise that the per cent difference of the 1979 enumerated population and 1979 projected population under the four series is not much. Therefore the estimates can be said to be good indicators of what the 1979 population was expected to be. For the projections with the 1980 data as derived from 1979 census data, nothing can yet be said till after the 1989 census is carried out.

CONCLUSION

Magnitudes of the problems of the rapid population growth rate in Kenya (increase in population size and its various functional groups; school age population; labour force population etc.) are reflected in the projections. It is for this reason that the projections have and will continue to provide a useful tool

of estimating the magnitude of resources that will be needed in the short and in the long run. The projections have greatly assisted in labour force planning, health planning, educational planning and planning in many other sectors.

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POPULATION PROJECTION FOR ETHIOPIA, 1985-2000, AND REVIEW OF PAST EXPERIENCES

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I. INTRODUCTION

A - Uses of Population Projection

It is common practice nowadays that every Government plan its society's development through systematic and institutionalized short, medium and long term economic and social development plans. The economic and social development plans require comprehensive population projection to plan and set targets of the various sectors of the economy and to monitor the implementation of the development plans. Hence the preparation of timely and comprehensive population projections is necessary and should be taken as an important function by institutions concerned.

B. Population size, distribution and average household size

The sources of demographic data in the country have been the two rounds of National Sample Surveys, 1964-1967, and 1968-1971, respectively, the 1979/80 and 1980/81 rural demographic surveys and the 1978 manpower and housing survey conducted in 18 major urban areas. Because these surveys in common lack detailed demographic data at the regional and lower administrative levels as well as complete geographical coverage, the lack of adequate and reliable data has been a major problem. Fortunately, the successful completion of the first population and housing census in May 1984 will go a long way in satisfying the data needs of the country.

We will here briefly present the population size, distribution and other parameters obtained from the preliminary census results. The census covered about 85 per cent of the rural population and almost all urban. It excluded the rural population of Eritrea and Tigray regions, Asseb Administration, the nomadic Ogaden awrajas of Hararge, Elkere awraja in Bale, parts of Wollo and Gondar regions. The census results plus the official estimates for non-covered areas plus the official estimates for non-covered areas put the May 1984 population of the country at 42,169,203, of which the urban population was 4,454,815 or 10.56 per cent. The sex ratio was 87 for urban, 101 for rural and 99 for the total population. The average household size was 4.4. The population density was 34.5. The reported crude birth rate was 41.4 for rural, 27 for urban, and 39.5 for total population and the reported crude death rate was 13.2 for rural, 8 for urban and 12.5 for total population. The crude rate of natural increase was 2.82 per cent for rural, 1.90 for urban and 2.70 for total population.

Table 1 presents distribution of population, per cent urban, area, density and average household size by regions. It will be observed that the regional population distribution is uneven. Shewa, the most populous region, accounted for slightly less than one-fifth of the total population, and the five most populous regions with a population of 3 million or more accounted for 54.4 per cent of the total population. On the contrary, the three least populous regions with a population of about 1 million accounted for only 7.6 per cent. The population density ranged from as low as 7.8 persons in Bale to as high as 94.8 persons in Shewa. The most densely populated regions were Shewa, Arssi, Gojjam, Keffa, Wello and Gondar. Bale, Illubabor and Hararge were less densely populated. The great unevenness in population distribution becomes more evident when viewed in

light of the fact that rural awraja (province) population densities vary from as low as less than five persons per km^2 in the lowland areas to as high as close to 300 persons in the most populous awrajas of the country (280 in Kembata and Hadiya, 275 in Wollayta).

As can be seen from Table 1, the degree of urbanization in the country is very low, and the proportion urban accounted for 10.6 per cent. The per cent urban vary from about 5 per cent in Keffa, Wellega, Gamogoffa and Illubabor to as high as 15 per cent in Eritrea. Although for the purpose of the census 660 localities were counted as urban, only 339 urban areas had a population of 2000 and over, which is the definition taken here. Although the degree of urbanization is very low, the rate of urban population growth has been very fast, 4.8 per cent per annum.

II. Review of Population Projections in Use up to now

Excepting the wild population estimates by travellers and Italian sources that prevailed up to 1950's 1/ the earliest available population estimates of the country that had some factual basis dates back to 1956 which was based on the population reporting conducted by the Ministry of Interior in 1956 for the purpose of determining the number of constituencies and election of representatives to the chamber of deputies of the first parliamentary election in 1957. The reporting covered 87 per cent of the total population, and the remaining 13 per cent were estimated independently. The population of Ethiopia was estimated at 19.5 million in 1956. Population estimates by regions and size-class of municipalities based on the 1956 population reporting for rural areas, and 1956 and 1962 for municipal towns, conducted by the Ministry of Interior, first appeared in the 1964 Statistical Abstract, the second issue in the series. The 1962 estimated population was 21,461.7 thousands. 2/

In Ethiopia population projections were available following the launching of subsequent national sample surveys and demographic surveys after the establishment of the Central Statistical Office in the early 1960's. Thus starting around 1970 various population projections of varying detail are available. These will be discussed in turn.

1/ See Mesfin W. Mariam, "An Estimate of the Population of Ethiopia", pp. 135-136, in ETHIOPIAN OBSERVER, Volume 5, No.w, 1961, Addis Ababa.

2/ Central Statistical Office, 1964 Statistical Abstract, pp. xi, 1-2, Addis Ababa.

Table 1: Distribution of total, urban population, area, density, and average household size by regions, May 1984.

Region	Total Population		Per cent 1/	Area			Household Size 1/
	Number	%	Urban	Km^2 (000's)	%	Density	
Arssi	1,662,233	3.94	7.06	24.6	2.01	67.6	4.8
Bale	1,006,491	2.39	6.86	126.3	10.49	7.8	4.7
Gamogoffa	1,248,034	2.96	5.05	40.1	3.28	31.1	4.3
Gojjam	3,244,882	7.69	7.19	64.4	5.26	50.4	4.3
Gondar	2,905,362	6.89	7.10	73.4	6.00	39.6	4.4
Eritrea	2,614,700	6.20	15.30	91.6	7.49	28.5	4.5
Hararge	4,161,168	9.87	7.15	254.8	20.84	16.3	4.3
Illubabor	963,955	2.29	5.27	50.8	4.15	19.0	4.1
Keffa	2,450,369	5.81	4.94	53.0	4.33	46.2	4.1
Shewa	8,090,565	19.19	8.17	85.3	6.97	94.8	4.4
Sidamo	3,790,578	8.99	6.02	116.7	9.54	32.5	4.4
Tigray	2,409,700	5.71	8.21	65.7	5.37	36.7	4.3
Wellega	2,477,277	5.87	4.73	69.8	5.70	35.5	4.7
Wello	3,642,014	8.64	6.83	79.0	6.46	46.1	4.1
Asseb Adm.	89,300	0.21	34.76	25.8	2.11	3.5	3.0
Addis Ababa	1,412,575	3.35	100.0	.2	0.0	5,886	5.2
Total	42,169,203	100.0	10.56	1,223.5	100.0	34.5	4.4

Source: ETHIOPIA 1984 Population and Housing Census Preliminary Report, Volume I, No. 1, Addis Ababa, September 1984.

a) Urban areas with population 2000 and over are compiled from the census preliminary report.

b) The average household size for Eritrea, Tigray and Asseb Administration refers to urban population only. The average household size for the City of Addis Ababa is on the high side because the institutional population is not excluded from the total population.

A. Population Projection 1967-1980

On the basis of the results of the National Sample Survey, First Round, 1964-1967 which covered 83 per cent of the rural areas in twelve surveyed regions (excluding Eritrea and Bale), and 92 per cent of urban areas, a provisional projection for 1967-1980's was made. In January 1967, the total population of the country was estimated at 22,591 thousand of which 20,674 thousand were rural, and 1,917 thousand or 8.5 per cent were urban population. Population estimates for the rural and urban areas that were not covered in the survey were based on the 1956 and 1962 Ministry of Interior population reporting that were not reliable. As a relatively larger rural than urban population was estimated from an unrealiable source, the estimated rural population was considered as biassed.

The projection was based on the following assumptions:

a) The rural and urban population growth rates were assumed at 2.1, and 6.5 per cent per annum, respectively and assumed constant for the projection period.

b) That the population growth rate will continuously increase during the decade, and as a consequence of assumption (a) the population growth rate will increase from 2.47 per cent in 1967 to 2.69 per cent in 1980.

This early provisional mathematical projection was only made to project the total population size by rural, urban breakdown.

Accordingly the population size of the country rose from 22,591,000 in 1967 to 31,434,000 in 1980 and the proportion urban increased from 8.5 per cent in 1967 to 13.8 per cent in 1980. 1/ This projection was definitely of limited utility.

B. Population Projection 1970-2000

The first detailed population projection by age and sex using the component method of projection was made for the period 1970-2000 as published in "The Demography of Ethiopia". 2/

The population projection constituted one chapter of the above mentioned Statistical Bulletin and the making of the projection was treated in detail. The base rural population estimate was based on the results of the National Sample Survey, Second Round, 1968-1971. For rural areas that were not covered

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1/ Central Statistical Office, The Population of Ethiopia, pp. 5-14, STATISTICAL Bulletin 6, Addis Ababa, November 1971.

2/ Central Statistical Office, The Demography of Ethiopia, Addis Ababa, January 1974.

in the survey, population estimates were based by up dating results of National Sample Survey, First Round or from the 1956 Ministry of Interior population reporting if areas were not covered by either surveys. The urban population estimate for 1970 was arrived by up dating the results of the urban survey, First Round, 1964-1967. The estimated January 1970 base population was 24,068,800 of which 2,337,900 or 9.7 per cent was urban population.

1 - Base Age-Sex Structure

The reported age-sex structure was heavily distorted and thus an adjusted age distribution based on stable population technique was used instead.

2 - Fertility, Mortality and Migration Assumptions

2.1 Fertility

The reported crude birth rate of 38.2 per 1000 was adjusted to 44.7 per 1000. To eliminate the bias due to effects of the age-sex distribution a corresponding age-sex adjusted birth rate of 48 was derived.

2.1.1 Assumptions

Three fertility assumptions were made. For the high fertility variant, no decline was assumed till the end of the projection period. For lack of past fertility data that serves as a basis of future projections, the United Nations generalized pattern of fertility decline has been adopted. The onset of the decline for the low and medium fertility assumptions were taken to start in 1985-1990, and 1990-1995, respectively. Sex ratio at birth was assumed as 105.

2.2 Mortality

The base mortality estimate for 1970 was an e_o^o of 45 years for males, and 40 years for females. Different trends of mortality decline by sex were assumed. Male life expectancy was assumed to follow the UN generalized mortality assumption for developing countries of half a year per year gain in life expectancy. Female life expectancy was assumed to increase at half a year per year from 1970 to 1985, at one year per year up to 1995, and at half a year per year thereafter.

2.3 Migration

There was no information available on international migration, but it was considered insignificant for the purpose of the projection.

3. Results

The population size of the country which was 24,338,600 in 1970 would reach 54,614,300 according to medium variant and 55,804,300 according to the high variant by year 2000. The projection results by sex for the period 1970-2000 are presented in Table 2.

Table 2: Population Projection of Ethiopia, 1970-2000

Year and Variant		Population (000's)		
		Males	Females	Total
1970		12,349.1	11,989.5	24,338.6
1975		14,014.6	13,377.3	27,391.9
1980		15,684.6	15,380.7	31,065.3
1985		17,956.4	17,659.4	35,615.8
1990	High	20,703.5	20,419.9	41,123.4
	Medium	20,703.5	20,419.9	41,123.4
	Low	20,625.3	20,152.3	40,777.6
1995	High	23,882.5	23,861.2	47,743.7
	Medium	23,769.8	23,753.7	47,523.5
	Low	23,391.7	23,141.1	46,532.8
2000	High	28,096.1	27,708.2	55,804.3
	Medium	27,497.0	27,117.3	54,614.3
	Low	26,374.1	26,242.0	52.616.1

N.B. The population projection which was originally given for January of each year were adjusted to July 1, of each year to give mid year estimates in order to maintain comparability.

Source: The Demography of Ethiopia, op. cit., p. 111, and Ethiopia Statistical Abstract, 1982, p. 49.

4. Shortcomings

The projection that was made only gives total population projection by five year age-sex groups. There were no regional, rural/urban, subnational and city population projections made. Despite the fact that the projection did not give rural/urban breakdown, and regional population projections, the CSO was providing total, urban, and rural population estimates by five year age-sex groups, regional population estimates, and population estimates of towns with population of 2000 and over in its annual issues of Statistical Abstracts. The regional population estimates were obtained by assuming constant the ratio of each regions population observed in the base period. The population estimate of each town was obtained by applying a constant urban growth rate of 6.6 per cent per annum, and the urban population was arrived by adding the population estimates of individual towns. The rural population estimate was obtained by subtracting the urban population from the total population.

C. Growing demand for regional and subnational population projections and detailed population data.

The lack of reliable and adequate population data at the national, regional, awraja (province), and at wereda (district) levels have been a major bottleneck in planning. There has been an ever growing demand and awareness by planners, ministries, development agencies and data users for the Central Statistical Office to provide them with detailed demographic data up to the lowest level of administration and have always utilized what ever meagre and deficient data that have been supplied to them. It is expected that most of the demand for detailed demographic data will be met as the results of the May 1984 census become available.

As the National Revolutionary Development Campaign and Central Planning Supreme Council (now Office of the National Committee for Central Planning) was instituted and established in October 1979. CSO prepared annual population estimates by interpolating the five year projections already made for 1970-2000. The urban population estimates were obtained from the total population estimate by multiplying it by the proportion of urban population for the given year. The proportion of urban population which was estimated at 12.8 per cent in 1978 were assumed to increase by 0.4 per cent per annum. Thus the proportion urban would grow from 13.6 per cent in 1980 to 17.6 per cent in 1990.

The more comprehensive and effective demand and integration of population factors into development planning came with the drafting of the ten year perspective plan (1984-1994), the drafting of which started in 1982. Different task forces, about 20, were set up to prepare the draft plans of the various sectors of the whole plan. One of the task forces established was the Statistical Task Force which prepared the plan for the statistical needs, programs and activities for the plan. One of the functions of the Statistical Task Force was to prepare population projections that should serve as a basis for planning and monitoring of the plan. In order that the plan be based on a reliable and realistic population data, CSO initially prepared population projection based on new evidences obtained from the 1979, and 1980/81 Demographic Surveys, and Census Cartographic work and advised that it should be used as a basis for the plan. This new population projection which gave results close to that of the census was not accepted on the

grounds that the census was in hand and CSO was asked to prepare a population projection based on the old estimates. Then CSO prepared annual population estimates for total, urban, and rural by age and sex for 1980-1995 covering the plan period based on the 1970-2000 projection. Regional Population estimates were also prepared by sex. All the sectors of the plan, macro-economic, food, health, education, manpower, social services, housing, agriculture, industry, trade, etc. used the population projection to plan their sectors and to set targets. The population projection for 1980-1995 used for the plan is given in Table 3. However, it suffices to say that the census results clearly demonstrated that the plan was based on a low population figure.

III. New Population Projection: 1985-2000

The results from the population and housing census which covered about 85 per cent of the country plus the estimates taken for the areas not covered in the census put the 1984 population of the country at 42,169,203. This result greatly exceeded by 22 per cent the 1984 official population estimate of 34.6 million. The Central Statistical Office is in the process of preparing population projections based on the census result for revising the ten year perspective plan which as already stated was based on a smaller population.

In this paper, a population projection based on the census result will be made for the period 1985-2000. Since this is a first attempt to prepare population projection based on the census result, it will serve as a useful basis for the population projection that will be prepared by the Central Statistical Office.

As detailed census data from the second stage of data processing and publication which encompasses all urban population, and 20 per cent of rural enumeration areas are not yet available, only the population size by sex obtained from the preliminary result is utilized here. The rest of the basic data were derived from the 1978 Manpower and Housing Survey and the 1980/81 Demographic Survey.

1. Age-Sex Structure

The age-sex structure of 18 major urban areas, and the 1980/81 Demographic Survey were adjusted and weighted to give the country's age-sex structure. The reported age distribution was heavily distorted due to age-misreporting, and under-reporting of children aged 0-4 especially males. The common feature of the reported age distribution was a large over-reporting and excess of females over males in the age group 20-34 years and male excess over females in the age-group 5-19, and at 35 years and over. In the urban areas females exceed males except in the age group 0-9 years. The large excess and over-reporting of females in the age group 20-34 should mainly be due to large female age understatement in the reproductive ages which led to rapid thining out of females at ages 45 and over. Sex ratios has been constant for a long time, 104 for rural, 86 for urban, and 102 for the country. The census preliminary result gave the same sex ratio for urban, 87, but lower sex ratio for rural, 101 and 99 for total population. The low sex ratio revealed by the census need to be evaluated when detailed census data become available.

Table 3: Rural, urban and total population projection by sex, 1980-1995 (in 000's)

Year	Sex	Population		
		Rural	Urban	Total
1980	Male	13,683.3	2,001.3	15,684.6
	Female	13,157.1	2,223.6	15,380.7
	Total	26,840.4	4,224.9	31,065.3
1981	Male	13,987.7	2,115.8	16,103.5
	Female	13,449.7	2,350.9	15,800.6
	Total	27,437.4	4,466.7	31,904.1
1982	Male	14,302.8	2,235.6	16,538.4
	Female	13,752.6	2,484.0	16,236.6
	Total	28,055.4	4,719.6	32,775.0
1983	Male	14,628.8	2,361.1	16,989.9
	Female	14,066.2	2,623.5	16,689.7
	Total	28,695.0	4,984.6	33,679.6
1984	Male	14,967.8	2,492.8	17,460.6
	Female	14,392.2	2,769.8	17,162.0
	Total	29,360.0	5,262.6	34,622.6
1985	Male	15,324.6	2,631.8	17,956.4
	Female	14,735.1	2,924.3	17,659.4
	Total	30,059.7	5,556.1	35,615.8
1986	Male	15,691.2	2,777.0	18,468.2
	Female	15,087.7	3,085.6	18,173.3
	Total	30,778.9	5,862.6	36,641.5
1987	Male	16,069.3	2,929.0	18,998.3
	Female	15,451.3	3,254.5	18,705.8
	Total	31,520.6	6,183.5	37,704.1
1988	Male	16,459.4	3,088.1	19,547.5
	Female	15,826.4	3,431.2	19,257.6
	Total	32,285.8	6,519.3	38,805.1
1989	Male	16,861.7	3,254.5	20,116.2
	Female	16,213.1	3,616.1	19,829.2
	Total	33,074.8	6,870.6	39,945.4
1990	Male	17,275.1	3,428.4	20,703.5
	Female	16,610.6	3,809.3	20,419.9
	Total	33,885.7	7,237.7	41,123.4

Table 3 (contd.)

Year	Sex	Population		
		Rural	Urban	Total
1991	Male	17,707.8	3,602.2	21,310.0
	Female	17,027.1	3,997.4	21,024.5
	Total	34,734.9	7,599.6	42,334.5
1992	Male	18,148.6	3,782.3	21,648.2
	Female	17,450.9	4,197.3	21,648.2
	Total	35,599.5	7,979.6	43,579.1
1993	Male	18,597.3	3,971.4	22,568.7
	Female	17,882.4	4,407.1	22,289.5
	Total	36,479.7	8,378.5	44,858.2
1994	Male	19,053.8	4,170.0	23,223.8
	Female	18,321.2	4,627.5	22,948.7
	Total	37,375.0	8,797.5	46,172.5
1995	Male	19,518.3	4,378.5	23.896.8
	Female	18,767.2	4,858.8	23,626.7
	Total	38,286.2	9,237.3	47,523.5

The 1985 population was arrived by applying a population growth rate of 2.8 per cent per annum for the 1984 census population, and the sex ratio as obtained from the census is used.

It is worth mentioning that even after adjustment the resulting age-sex structure bears the same inherent distortions, and that the age distribution at older ages is not also reliable.

2. Fertility Assumptions

The following adjusted fertility estimates given in Table 4 were derived from the 1980/81 Demographic Survey, and the 1978 Manpower and Housing Survey, and were taken to represent the base period fertility.

Table 4: Reported and adjusted fertility estimates by rural/urban: 1978-1980.

Residence	Crude birth rate		Total fertility rate	
	Reported	Adjusted	Reported	Adjusted
Rural areas	43.4	46.9	6.8	6.9
Addis Ababa	32.3	37.0	3.8	5.5
Other urban areas	36.7	40.8	4.4	6.0
All urban	35.3	39.6	4.2	5.8
Total	42.6	46.0	6.5	6.78

Table 5: Percentage distribution of reported age specific fertility rates by rural/urban, selected periods.

Period	All Ages	Age Groups						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
		Rural Areas						
1964-1967	100.0	12.9	23.5	23.2	18.1	12.3	5.0	5.0
1968-1971	100.0	14.1	24.8	22.7	16.2	12.9	5.5	3.8
1979/80	100.0	10.5	21.5	23.3	19.0	13.9	8.1	3.7
1980/81	100.0	8.4	20.0	21.9	19.2	16.5	9.2	4.8

Table 5 (contd.)

Period	All Ages	Age Groups						
		15-19	20-24	25-29	30-34	35-39	40-44	45-49
				Addis Ababa				
1967	100.0	7.5	24.2	26.8	21.5	13.8	4.3	1.9
1978	100.0	5.8	23.1	25.6	19.4	13.8	6.3	6.0
				Other Urban Areas				
1968-1971	100.0	10.2	27.1	23.9	20.3	11.8	4.0	2.7
1978	100.0	7.5	25.0	25.5	17.0	13.5	8.5	3.0
				Country				
1977-1981	100.0	9.1	20.9	23.1	19.0	15.1	8.6	4.2

Source: CSO, Study on Levels, Patterns, Trends and Differentials of Fertility, Infant and Childhood Mortality in Ethiopia, pp. 48-50, Addis Ababa, June 1984.

Table 6: Adjusted age-specific fertility rates for total country, rural, urban; 1977-1981.

Age Group	Urban	Rural	Total
15-19	0.0807	0.1288	0.1232
20-24	0.2835	0.2848	0.2840
25-29	0.2960	0.3152	0.3132
30-34	0.2056	0.2636	0.2575
35-39	0.1580	0.2103	0.2048
40-44	0.0909	0.1190	0.1160
45-49	0.0453	0.0587	0.0573
Total	1.16	1.38	1.356
Total fertility rate	5.8	6.9	6.78

The sex ratio at birth of 105 is taken. Three fertility assumptions are taken. The high variant assumes constant fertility. The low and medium fertility assumptions follow the UN models of fertility decline. 1/ The replacement level of fertility is assumed to be reached in 60 years from the onset level of gross reproduction rate of 3.3. At present, the coverage of family planning services is very low and only limited to urban areas where it is given as a component of MCH in 365 Government and other health institutions. However, the large population size as revealed by the census, and the general awareness and recognition of population problems such as unbalanced distribution between population and resources, food shortages, famines and droughts are expected to lead to the adoption of population policy and national family planning program. Already large scale resettlement programs are under-going in response to the severe and persistent droughts and famines. The medium and low fertility assumptions are as follows:

a) Medium fertility assumption, the onset of fertility decline is assumed to start in 1995, total fertility rate is taken as 6.78 for 1985-90, and 1990-95, and 6.7 for 1995-2000.

b) Low fertility assumption. The onset of fertility decline is assumed to start in 1990. Total fertility rate will be 6.78 for 1985-90, 6.7 for 1990-95, and 6.56 for 1995-2000.

Given the gross reproduction rate, the base period age specific fertility rates given in Table 6 were projected according to the observed shifts in age patterns of fertility overtime. An examination of the pattern of age-specific fertility rates over time (see Table 5) shows of declining trend in the contribution to fertility of women aged 15-19 years, and also of 20-24; and of a shift in the peak of fertility schedule from age group 20-24 to 25-29, and of increasing fertility among rural older women. The fertility of Ethiopian women aged 45-49 is higher than any of the UN models of fertility, and that the Ethiopian age pattern of fertility is different from the UN models for the same level of fertility. 2/

3. Mortality

For the period 1975-1980, the adjusted estimates of the level of mortality were as follows:

Residence	Crude death rate	Expectation of life at birth
Rural	18.4	46.0
Urban	15.7	50.9
Total	18.1	46.5

1/ UN, World Population Prospects as Assessed in 1973, op. cit., p. 8-11.

2/ UN, World Population Prospects as Assessed in 1973, p. 11, New York, 1977.

The occurences of persistent droughts and famines have become a common feature for over a decade and climaxed in the 1984/85 drought and famine. The 1984/85 drought, the most serious in the history of the country is believed to have claimed a heavy toll of life. However, due to lack of data, the level of mortality of the 1975-1980 is also assumed to prevail for 1980-85.

Only one mortality assumption of an increase in life expectancy at birth of half a year per year is made here. Levels 13, 14, and 15 of the Coale and Demeny North Model life tables were used for the period 1985-1990, 1990-1995, and 1995-2000, respectively with correspondingly expectation of life at birth of 48.3, 50.7, and 53.2 years.

4. Migration

There is no data on external migration and hence no account is taken. Data on internal migration such as place of birth, and length of continuous residence were collected in the census, but is not yet processed. Thus, at present due to lack of migration data, it would be difficult to carry regional and sub-regional population projections.

Despite the lack of migration data, urban-rural population prospection can be made using the UN urban-rural growth difference (URGD) method 1/ which requires knowledge of the rural and urban population growth rates. According to calculations I have made on the growth of the urban population over time, the urban population grew by about 5 per cent per annum between 1960's and 1980's , more specifically by 6.6 per cent between 1965 to 1970; 4.26 per cent between 1970 to 1984; and 4.80 per cent between 1965 to 1984. Recent evidences suggest that the urban population growth is slowing down. For the 18 major urban areas covered during the 1978 manpower and housing survey, the growth rate was 5.27 per cent per annum between 1970 to 1978; and 3.5 per cent between 1978 to 1984. The future urban population growth rate would lie between 3.5 to 4.2 per cent per annum, and the rural population growth rate would be between 2.5 to 2.7 per cent per annum. The URGD would be between 1 to 2 per cent, and 1.5 per cent would better approximate the difference. For brevity, the rural/urban population projection is not treated here.

5. Results of Projection

The population size will rise from 43.3 million in 1985 to 49.6 million in 1990; to 57.3 million in 1995, and would reach about 67 million in year 2000. In year 2000 it would reach 67.1 million according to high variant, and 66.5 million according to low variant.

In the 15 years period (1985-2000), the 1985 total population would increase by 54.4 per cent, and children aged 0-14 by 51.8 per cent, that is from 20,043,045 in 1985 to 30,430,612 in 2000 (30,623,704, and 30,011,245 according to high and low variants), and population aged 15-49 by 61.2 per cent from 18,327,404 to 29,548,014 (and from 9,520,170 to 15,016,821 for females). The projected population of 66,950,152 in year 2000 is significantly higher by 22.6 per cent than the previously

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1/ UN, Manual VIII, Methods for projections of urban and rural population, pp. 36-44, New York, 1974.

projected population of 54,614,300 in year 2000. The projected total population size by sex is presented in Table 7, and the projected population by age-sex groups according to the medium variant is given in Table 8.

Table 7: Population projection by sex 1985-2000.

Year		Male	Female	Both sexes
1985		21,607,429	21,742,511	43,349,940
1990		24,688,920	24,916,463	49,605,383
1995	High	28,527,357	28,808,667	57,336,024
	Medium	28,527,357	28,808,667	57,336,024
	Low	28,442,035	28,725,732	57,167,767
2000	High	33,424,087	33,719,157	67,143,244
	Medium	33,326,070	33,624,082	66,950,152
	Low	33,113,473	33,417,312	66,530,785

The projection results show that the implied rate of population growth would continue to be very rapid, growing from 2.7 per cent per annum for 1985-1990, to 2.9 per cent for 1990-95, and to 3.1 per cent for 1995-2000. For 1995-2000 it would be 3 per cent according to the low variant, and 3.2 per cent according to the high variant.

IV. Conclusion

The population estimtes and projections of the country which were based on the data from the National Sample Survey, second round, 1968-1971, and which was in use up to last year were found to be too low compared with the result of the first population and housing census of May 1984. Hence, the ten year perspective plan need to be revised in the light of the census results.

The paper traced the population projections in use up to now, the need for demographic data in planning, and on the basis of the 1984 census results a population projection was prepared for the period from 1985-2000. The new population projection results show that the country which had already a large population in 1985, 43.3 million would still have a much larger population of 67 million by year 2000.

This very large population would have obvious serious consequences on the socio-economic development of the country although the implications are not treated here for lack of detailed data and brevity.

From the experiences gathered from the population data requirements of the ten year perspective plan and the preceding six series of annual development plans

Table 8: Population projection by age-sex group, medium variant; 1985-2000.

Age Group	1985		1990		1995		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
0-4	3,860,695	3,800,669	4,513,632	4,395,619	5,289,403	5,141,417	6,293,765	6,104,865
5-9	3,473,699	3,440,862	3,570,371	3,529,985	4,218,937	4,127,794	4,992,139	4,876,686
10-14	2,800,446	2,666,674	3,370,843	3,341,937	3,477,256	3,442,406	4,122,914	4,040,243
15-19	2,012,979	1,888,152	2,737,268	2,609,607	3,302,010	3,278,774	3,413,483	3,385,469
20-24	1,486,483	1,657,569	1,952,972	1,842,043	2,662,404	2,552,509	3,219,691	3,215,035
25-29	1,270,409	1,550,234	1,433,059	1,610,295	1,888,602	1,794,739	2,582,452	2,493,929
30-34	1,177,134	1,421,158	1,222,133	1,499,293	1,383,117	1,562,662	1,828,658	1,747,322
35-39	1,107,748	1,228,795	1,128,059	1,367,651	1,175,374	1,448,467	1,334,889	1,515,345
40-44	959,852	1,003,475	1,053,989	1,176,289	1,077,736	1,314,559	1,127,513	1,397,771
45-49	792,629	780,787	903,902	955,659	997,253	1,124,744	1,024,507	1,261,950
50-54	660,229	600,479	734,973	736,633	842,563	905,363	934,466	1,069,980
55-59	571,258	484,287	598,385	556,272	670,244	685,842	773,144	847,202
60-64	478,718	414,212	499,297	434,434	527,040	502,386	594,942	623,629
65-69	379,421	307,757	393,927	351,355	414,926	371,932	442,382	434,147
70+	575,729	507,401	576,110	509,391	600,492	555,073	641,125	610,509
Total	21,607,429	21,742,511	24,688,920	24,916,463	28,527,357	28,808,667	33,326,070	33,624,082

and campaigns as well as from other data users, we should, in future, prepare comprehensive and elaborate population projections so as to facilitate effective integration of population factors into development planning. Thus population projections should embrace projections by age-sex group for total country, rural/urban, regional and subregional at least up to the awraja (province) level, projection of population of cities .... etc. It should also include sectoral population projections such as labour force, school age population, and projections of housing and households. That the preparation of annual estimates of population and other projected variables should form an integral part of the projections. Last but not least, with the co-operation of planners, the quantitative implications of the population projections for food, housing, health, education, employment, consumption, investment, etc. should be incorporated so as to clearly show the need for population policy and long term population planning. The need for formulating an appropriate population policy is clearly recognized in the ten year perspective plan. In view of the currently high fertility and very large population, the timely adoption and institution of population policy and national family planning program will serve the long term interests of the society.

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POPULATION PROJECTIONS
THE ZIMBABWEAN EXPERIENCE

ZIMBABWE EXPERIENCE IN POPULATION PROJECTIONS

Zimbabwe views the population component as one of the major elements of a socialist socio-economic planning process since development is a means for advancing society and improving the quality of life of the population. Population is the most important resource therefore development planning should take account of the population size, structure, composition and distribution not only of the present period but also at least of the near future. Projections are not only useful for planning purposes by the government but are also useful for private planners, market research analysis etc.

Zimbabwe has had two relatively recent and reliable de facto censuses in 1969 and 1982. However, the first attempt to enumerate the population through an organized census was as far back as in 1901 which was followed by a sequence of several censuses until 1961. These censuses and surveys were confined to the non-African population. It should be noted that the 1982 population census was the first one undertaken in independant Zimbabwe which has covered a broad range of topics concerning the total population. Through the National Household Survey Capability Programme a Demographic-Socio-Economic survey was undertaken and provincial reports based on manual tabulations were prepared for the eight provinces in Zimbabwe. The Child Spacing and Family Planning Council of Zimbabwe has recently carried out a contraceptive prevalence survey at National level in conjunction with the Central Statistical Office.

There has therefore been a concerted effort towards population data collection since independance. Plans are underway for an intercensal demographic survey to be conducted in 1986/87.

Since efforts have been directed towards basic data collection, very little has been done in the area of population projections. On what has been done the 1969 data was being used as a base. The analytical programme of the 1982 census however includes an ambitious population programme, details of which are given later in this paper.

The results of the successive censuses and national demographic sample surveys since the first inquiry in 1901 are summarized in the following table.

DE FACTO POPULATION BY RACE AT CENSUS AND SURVEY DATES

Date	European	Asian	Coloured	African (1)
1901, May 31st	11,032	1,093	--	--
1904, April 17th	12,596		1944(2)	--
1907, September 29th	14,007	--	--	--
1911, May 7th	23,606	870	2,042	--
1921, May 3rd	33,620	1,250	1,998	--
1926, May 4th	39,174	1,454	2,158	--
1931, May 5th	49,910	1,700	2,402	--
1936, May 5th	55,408	2,180	3,187	--
1941, May 6th	68,954	2,547	3,974	--
1946, May 7th	82,386	2,911	4,559	--
1948, August 31st	--	--	--	1,817,000(3)
1951, May 8th	135,596	4,292	5,991	--
1954, September	--	--		2,304,000(4)
1956, May 8th	177,124	5,127	8,079	--
1961, September 26th	222,504	7,253	10,559	--
1962, April 24th	--	--	--	3,618,150
1969, March 20th	228,296	8,965	15,153	--
April 29th	--	--	--	4,846,930

Source: Central Statistical Office - "Census of Population 1969" Government Printer Salisbury.

Note: -- Not enumerated.

(1) Prior to the 1948 Sample Survey the only data available on the African population were (i) estimates of indigenous population based on tax registers and (ii) from 1921, simple census details of the number of African employees, which distinguised between the indigenous and non-indigenous employees. Some rough estimates of the African population was required. This was achieved by using the existing Administrative machinery. The country was divided into two major provinces of Matebeleland and Mashonaland which in turn were divided into districts with the Native District Commissioners in charge of the districts. The Native District Commissioners made estimates of the total population in their districts from which a national total was arrived at.

Africans used to pay a hut tax and tax registers were kept by the Native Commissioner and the number of tax payers were related to the number of huts. The number of occupants per hut was worked out

at 3.5 to 4 people. The number of taxed huts was therefore raised by a factor to get the appropriate total population in each district (Reference: A Demographic Profile of Zimbabwe by David J.K. Mzite Canberra, January 1981). The original estimate of African population for 1901 from the tax records was a total of 787,200.

(2) Asians and Coloureds combined.

(3) Sample survey result relating to indigenous population of 1,587,100 plus an estimated 230,000 non-indigenous African employees.

(4) Sample survey result relating to indigenous population of 2,014,000 plus an estimated 290,000 non-indigenous African employees.

In brief the total populations enumerated at the three censuses were:

1962	1969	1982
3,857,470	5,099,340	7,546,071

Source: Table 1, 1969 Census Reports.

The population growth between 1962 and 1969 was 4.1 per cent per annum, while between 1969 and 1982 it was 3.1 per cent per annum.

The Central Statistical Office has made some population estimates based on the 1969 population as shown in the table below as published in our Quarterly Digest of Statistics.

POPULATION ESTIMATES

Every projection is made with the assumption that the country or area for which the projection is made will not experience a war or a natural calamity. Effects of future economic flactuations of a cyclic nature are considered to be either of remote possibility or unimportant.

In making the projections in Zimbabwe the mathematical method was used. This method is simple to apply and involve the use of mathematical formula directly to total population. So it is very useful where data are limited, for example they can be used where there is only the size of the total population at one or more censuses.

The mathematical method has a limitation in that it is not flexible enough to allow changes in the process. The mathematical method assume that population grows or declines at a constant rate. But, acceleration of slowing down of the rates are also possible.

In the Zimbabwean case projections were made by race as explained below and the projections given below were for the total population.

POPULATION ESTIMATES

A. National Total

	As at 30th June	As at 31st December
1901	710	
1910	880	
1920	1,130	
1930	1,430	
1940	1,940	
1950	2,730	
1960	3,840	
1970	5,310	5,400
1971	5,500	5,590
1972	5,690	5,780
1973	5,890	5,980
1974	6,080	6,180
1975	6,280	6,390
1976	6,490	6,600
1977	6,700	6,810
1978	6,920	7,020
1979	7,130	7,240
1980	7,360	7,480
1981	7,600	7,730

Source: Central Statistical Office - Quarterly Digest of Statistics December 1984 Harare.

Note: The total population recorded in the August, 1982, Census was 7,539,000 (provisional).

All figures in the above table are de facto figures which include temporary visitors and migrant workers but exclude normal residents temporarily absent from the country. The estimates are made up of two main components. (a) the African population and (b) the European, Asian and Coloured population.

Africans

The sample surveys of the African population in 1948 and 1954 indicated rates of natural increase of 2.8 per cent and 3.0 per cent respectively

while censuses of population in 1962 and 1969 showed natural increase rates of 3.4 per cent and 3.6 per cent respectively. Working backwards from the 1969 census and taking into account the 1948 to 1969 trend in the rate of natural increase, together with the number of foreign-born adult males recorded in the various censuses of employees dating back to 1921, it is estimated that the African population was at least 700,000 in 1901.

The estimates for the subsequent years are based on the assumption that the rate of natural increase was nil in the year following the 1918 influenza epidemic, but otherwise rose steadily from 1.5 per cent, in 1901 to 2.8 per cent, in 1948; to 3.0 per cent, in 1954; to 3.4 per cent in 1962; to 3.6 per cent in 1969, and has remained constant since then. Allowance is also made for migration of foreign-born persons.

Europeans, Asians and Coloureds

For Europeans, Asians and Coloureds estimates are based on various censuses of population the first of which was held in 1901 and the most recent in 1969.

In arriving at intercensal and post-1969 estimates of the European and Asian population, allowance is made for natural increase (i.e. excess of births over deaths), immigration and emigration.

As there are no satisfactory birth and death statistics for Coloureds and since migration for this group is negligible, the intercensal estimates are based solely on the average annual intercensal rates of increase. Similarly the post-1969 estimates are based on the 1961 to 1969 average annual rate of increase.

The United Nations (UN) has also made some population projections for Zimbabwe taking the 1969 population as the base. They used the component method of projecting the population from 1950 to 2025.

Population in Thousands (Medium Variant)

Year	Population
1950	2,415,000
1955	2,956,000
1960	3,605,000
1965	4,432,000
1970	5,308,000
1975	6,247,000
1980	7,396,000
1982	7,927,000
1985	8,805,000
1990	10,489,000
1995	12,465,000
2000	14,726,000
2005	17,238,000
2010	19,962,000
2015	22,822,000
2020	25,698,000
2025	28,435,000

Source: United Nations- Demographic Indicators of Countries. Estimates and projections as assessed in 1980. Page 97 New York 1982.

Three series high, medium and low were prepared and the results of the medium projection are presented below. Population was projected by 5 year age groups and sex. By using the model life tables survival ratios were calculated at the end of each five year period. The assumptions with regard to fertility, mortality and migration have not been stated by U.N. explicitly for each country but their publication (United Nations -"Demographic Yearbook" 1981) shows that for Africa a Crude Birth Rate (CBR) of 47.9 in 1950 - 1955 would decline to 25.5 per thousand by 2020 - 2025 and the corresponding decline in Gross Reproduction Rate (GRR) would be from 3.15 to 1.49. With regard to mortality it was assumed that the Crude Death Rate (CDR) of 27.4 per thousand 1950 - 1955 would decline to 6.5 in 2020 - 2025. The improvement in the level of life expectancy for the corresponding periods would be from 37.3 to 67.2 years. With regard to international migration for Zimbabwe it seems it was considered negligible.

The problems with the U.N. projections are: the base i.e. the 1969 Census is not very recent; the use of model life tables is not valid as the main component of population change is fertility; mortality has not been constant and the assumptions do not seem to be based on any scientific evidence.

THE 1982 POPULATION CENSUS

Due to computer problems and other unforseen delays in processing data for the 1982 Census a 10 per cent Sample was randomly selected. This was done to derive some of the national demographic parameters for immediate planning purposes. The 10 per cent sample was analyzed and some of the results obtained are given below for 1982.

Some Demographic Parameters estimated

	1982	Other Years
Crude Birth Rate (CBR)	39.48 per thousand	39.43 per thousand (1981)
Crude Death Rate (CDR)	12.3 per thoudand Male - 13.10 per thousand Female - 12.31 per thousand	
Sex Ratio	96	98 (1972)
Sex Ratio of Children ever born	1 01	
Gross Reproduction Rate (GRR)	2.8	2.9 (1981)
Gross Fertility Rate (GFR)	175.83 per thousand	175.98 per thousand (1981)
Total Fertility Rate (TFR)	5.6	6.60 (1980-85-UN)
Infant Mortality Rate (IMR)	Male - 93 per thousand Female - 73 per thousand Total - 83 per thousand	
Life expectancy at Birth (e_o^o)	Male - 55.70 years	49.1 years (1969)
	Female - 59.05 years	52.5 years (1969)
	Total - 57.4 years	50.8 years (1969)

Eight questions were asked in the 1982 population census from which mortality estimates can be derived. (see 1982 population census questionnaire attached at the back). The census information on mortality is deficient for deriving direct mortality estimates because the questions asked do not provide current data on mortality (i.e. the number of persons reported dead during a specific period). A high degree of under reporting is found in this data because people do not want to talk about sad events especially those which occurred recently. From the 1982 population census, data in Zimbabwe has a Crude Death Rate (CDR) of 12.3 per thousand for the total population. For the males the CDR is 13.10 per thousand whilst for females it's 12.31 per thousand. The total infant mortality rate (IMR) is 93 per thousand. Female IMR is 73 per thousand whilst the male IMR is 83 per thousand, compared with 101 per thousand for Africans in 1969. The mortality rate has declined since 1969. Males have a higher mortality rate than females and some of the reasons for this are that; males are more exposed to the risk of dying at work places than females and also biologically males are less healthy than females.

From the 1982 population census the Zimbabwe life expectancy at birth was found to be 57.4 years for both sexes as compared to that of 50.8 years in 1969. The life expectancy at birth for females has increased from 52.5 years in 1969 to 59.05 years in 1982 whilst that of males has increased from 49.1 years in 1969 to 55.70 years in 1982. For the total a rise of 6.6 years in life expectancy has been experienced. This is mostly due to the improvement of both health facilities and education in hygiene, diet etc.

In the absence of the complete coverage of vital statistics through the national registration system, attempt was made to collect birth statistics from the 1982 census. Questions to ascertain the number of children ever born to each women age 12 years and ever were asked. Also asked were the number of children she borne alive who died and sex and date of birth of the most recent born and information on whether this child was still alive were obtained. (See questionnaire attached).

The Total Fertility Rate (T.F.R.) has fallen from 6.60 in 1980-85 to 5.6 in 1982 as shown in the table above. The Crude Birth Rate (CBR) has also fallen from 39.43 per thousand in 1981 to 39.48 per thousand in 1981 but this is a very insignificant fall. Fertility level is on the decline in Zimbabwe probably due to the wide use of contraception to reduce of family size and to maintain the good health of mothers by spacing children.

Future Plan

Plans for the future will focus on viewing the entire demographic data for Zimbabwe. The Advance National report based on the 10 per cent sample will be published in due course. Other reports which the C.S.O. hopes to work on are:

(a) 8 Provincial Reports
(b) Reports on Harare and Bulawayo
(c) National Report
(d) Monograph Series with detailed analysis.

The C.S.O. will also work on some projections such as:

(a) Population by age, sex urban/rural.
(b) Population by age, sex urban/rural for each province.
(c) Population by age, sex for administrative areas.
(d) School age population at national and sub-national levels.
(e) Labour Force national and sub-national levels.

The production of tables and preparation of reports for each of the 8 Provinces and the two largest cities in Harare and Bulawayo are urgently needed by the government for sub-national/city planning and development. The projections of population by sex, age urban/rural for the country and its provinces and sectoral projections are also urgently required for national, sub-national and sectoral planning and also to bring general awareness among policy makers, planners and other functionaries concerned with the population matters of the short term and long term implications of the growth of population.

A new project has also been included in the future work plan. The object of including this research activity is to undertake a systematic attempt to assess the demographic impact of development planning. Research in this area is expected to provide the basis for co-ordinating the demographic, social and economic objectives of the development plan to achieve a balanced development.

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REPUBLIC OF ZIMBABWE — 1982 POPULATION CENSUS

HOUSEHOLD NUMBER | LOCAL AUTHORITY | ENUMERATION AREA NUMBER | NAME OF PLACE—VILLAGE, TOWN, SUBURB OR FARM | IF TOWN OR SUBURB, WRITE ADDRESS OR STAND NUMBER

		ALL PERSONS										PERSONS AGED TEN YEARS AND OVER		FEMALE AGED TWELVE YEARS AND OVER									
								EDUCATION				TYPE OF ACTIVITY LAST WEEK								PARTICULARS OF HER MOST RECENT LIVE BIRTH			
NAME Who stayed here last night? Write the names of all persons who stayed here last night	LINE No.	RELATIONSHIP TO HEAD How is this person related to the head of the household? State whether head, wife of head, son, daughter, other relative, not related	SEX What is this person's sex? Write M or F	AGE How old is this person? State age in completed years (in months if under one)	ETHNIC GROUP AND CITIZENSHIP Is this person a Zimbabwean? Zimbabwean Africans state father's dialect. Other Zimbabweans state ethnic group. Others state citizenship and ethnic group	BIRTH-PLACE Where was this person born? State district if born in Zimbabwe. State country if born outside Zimbabwe	PREVIOUS RESIDENCE Where was this person at this time last year? State district if in Zimbabwe. State country if outside Zimbabwe	SCHOOL ATTENDANCE Has this person ever been to school? State whether at school, left school, or never been	ATTAINMENT What is the highest academic level reached?	IS THIS PERSON'S FATHER ALIVE? Write yes or no	IS THIS PERSON'S MOTHER ALIVE? Write yes or no	MARITAL STATUS Is this person married? State whether never married, married, divorced, separated or widowed	DID THIS PERSON WORK LAST WEEK? Write yes or no	IF "YES"—WHAT KIND OF WORK? State occupation IF "NO"—WHAT WAS THE REASON? State whether housewife, student, unemployed, not working, too old, retired, disabled, visitor or as appropriate	OF THE CHILDREN THIS WOMAN HAS BORNE ALIVE, HOW MANY WERE HERE LAST NIGHT?		OF THE CHILDREN SHE HAS BORNE ALIVE, HOW MANY WERE ELSEWHERE LAST NIGHT?		OF THE CHILDREN SHE HAS BORNE ALIVE, HOW MANY HAVE DIED?		HOW OLD WAS SHE WHEN SHE BORE HER FIRST LIVE CHILD?	WHEN WAS THE CHILD BORN?		WAS IT MALE OR FEMALE?	IS THE CHILD STILL ALIVE?
															Male	Female	Male	Female	Male	Female	Age in years	Year	Month	Male or female	Yes or no
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
	01																								
	02																								
	03																								
	04																								
	05																								
	06																								
	07																								
	08																								
	09																								
	10																								

Write answers or place tick in appropriate box.

HOUSEHOLD PARTICULARS	MAIN MODE OF TRANSPORT TO WORK OF EMPLOYED PERSONS		TENURE STATUS	TYPE OF DWELLING				WATER-SUPPLY			TOILET FACILITIES		COOKING FACILITIES	
	Transport	Number of persons	Status of the head of the household	Housing other than municipal	Number of rooms	Municipal housing	Number of rooms	Source	Location: Within 100 m	Location: Beyond 100 m				
What language is usually spoken in this household?	Walking		Owner/Purchaser	Traditional		Hostel		Piped water inside house			Flush-toilet		Wood	
What is the religion of the head of this household?	Bicycle		Tenant	Mixed		Flat		Piped water outside			Pit-latrine		Paraffin	
Does this household have a radio?	Bus		Lodger	Detached		Cave		Well or bore-hole			None		Electricity	
	Car		In tied housing	Semi-detached		Extended cave		River or stream			Other—specify		Gas	
	Other—specify		Squatter	Flat or town house		Ultra-low cost		Other—specify					Other—specify	
			Other—specify	Hotel or lodging-house		Complete								
				Other—specify		Other—specify								

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